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October 13, 2011

Director, Air Enforcement Division
Office of Regulatory Enforcement
U.S. Environmental Protection Agency, Mail Code 2242-A
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

Subject: *United States v Equilon Enterprises, LLC*
Civil Action Number H-01-0978
Southern District of Texas entered August 21, 2001

Flaring Incident Report – September 21, 2011
Shell Oil Products US, Puget Sound Refinery

Dear Sir or Madam:

Pursuant to Section VIII, Paragraph 136 of the consent decree in *United States v Equilon Enterprises LLC*, Civil Action Number H-01-0978, entered August 21, 2001 by the United States District Court for the Southern District of Texas, Shell Oil Products US submits the following information regarding a Hydrocarbon Flaring Incident, as defined in Paragraph 120(f), that occurred at the Puget Sound Refinery. The incident was investigated and a detailed report listing the root causes is included in the attached Incident Report.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and that I have made a diligent inquiry of those individuals immediately responsible for obtaining the information and that to the best of my knowledge and belief, the information submitted herewith is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

If you have any comments or questions regarding this information, please contact Tim Figgie at (360) 293-1525.

Sincerely,

Thomas J. Rizzo
General Manager

Enclosure

cc (w/enclosures):

Director, Air Enforcement Division
U.S. Environmental Protection Agency
c/o Matrix Environmental & Geotechnical Services
120 Eagle Rock Avenue, Suite 207
East Hanover, NJ 07936

Director
NWCAA
1600 South 2nd Street
Mount Vernon, WA 98273

John Keenan
Office of Air Quality (OAQ-107)
US EPA – Region 10
1200 Sixth Avenue
Seattle, WA 98101

FLARING INCIDENT REPORT

Type of Incident: ☐ **Acid Gas / SWSG** ☐ **Tail Gas** ☒ **Hydrocarbon**

Brief Description of Incident:
On September 21 at approximately 2:55 pm the 15K1 Fractionator Overhead compressor on the Delayed Coking Unit (DCU) tripped resulting in excess flaring. The trip occurred when pump 15G5, which pulls naphtha to the recovery section, stopped pumping allowing the level in the Fractionator Overhead Accumulator drum (compressor 15K1 takes suction from this drum) to immediately start to rise. A high level in the accum drum resulted in the automatic shutdown of the compressor as a safety measure to prevent damage to the compressor. Operations personnel found that the 15G5 pump was off when they responded to the incident. The pump was not tripped out or damaged. A pump trip might occur because of loss of suction or failed equipment but that did not happen and none of the equipment sensors indicated a problem. Operations restarted the pump, which dropped the liquid level in the accum drum allowing Operations to restart compressor 15K1.

Operations was not able to determine what caused pump 15G5 to shut off. None of systems were tripped out and no equipment monitoring sensors indicated a problem. This event resulted in a 1-hour average SO2 reading above 1000-ppm corrected to 7%O2 (AOP term 4.11) and more than 500 lbs of excess SO2.

Incident Start Date:	9/21/2011	**Incident Start Time:**	2:55 pm
Incident End Date:	9/21/2011	**Incident End Time:**	4:00 pm

Estimated Sulfur Dioxide Emissions: (Attach below):	518 lbs	**Pounds**
SO2 lbs/hr = 0.995*(flare gas flow, MSCFH * 1000) * (Sulfur, vol% / 100) * (64.0648/379), where 0.995 is flare efficiency, 64 #/#-mole is the MW of SO2 and 379 is scf/#-mole		

Steps taken to limit the duration and/or quantity of sulfur dioxide emissions:

Flare gas recovery unit was operating to recovery as much excess flare gas as possible. In addition, unit charge rates were reduced on the DCU during the event.

ANALYSIS OF INCIDENT AND CORRECTIVE ACTIONS

No additional information attached

Primary and contributing causes of incident:

The root cause of this event was the shutdown of pump 15G5 on the fractionator accumulator drum. The cause of the pump outage could not be identified.

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):

The cause of the pump outage could not be identified and therefore correction action measures cannot be determined.

Description of corrective action to be taken (include commencement and completion dates):

See above.

If correction not required, explain basis for conclusion:

See above.

The incident was the result of or resulted in the following (check all that apply):

- ☐ **Error from careless operation**
- ☐ **Equipment failure due to failure to operate and maintain in accordance with good engineering practice**
- ☐ **Sulfur dioxide emissions greater than 20 #/hr continuously for three or more consecutive hours**
- ☐ **Caused the number of Acid Gas or Tail Gas incidents in a rolling twelve-month period to exceed five**
- ☐ **None of the above**

Was the root cause identified as a process problem isolated within an SRP?

- ☐ **Yes (An optimization study of the affected SRP is required as part of the corrective actions identified above.)**
- ☒ **No**

The root cause of the incident was:

- ☒ **Identified for the first time since March 21, 2001**
- ☐ **Identified as a recurrence since March 21, 2001 (explain previous incident(s) below)**

Was the root cause of the incident a malfunction?

- ☒ **Yes (describe below)**
- ☐ **No**

The root cause of this event was the shutdown of pump 15G5 on the fractionator accumulator drum. The cause of the pump outage could not be identified.

Definition of Malfunction: ***Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.***

REPORTING REQUIREMENTS

Submit initial report, supporting documents and assessment of stipulated penalties, if any, within 30 days of the incident to the EPA Regional Office and Northwest Clean Air Agency.

If at the time the first report is submitted (within 30 days of the incident), corrective actions have not been determined a follow-up report is required within 45 days of first report (unless otherwise approved by the EPA). Provide anticipated date of follow-up report.	Stipulated penalties do not apply to hydrocarbon flaring events.

Prepared By: _____Jeff Solomon _____ Date: ___September 28, 2011___